

<b>EiE for Kindergarten</b>		
<b>Unit</b>	<b>Science Concept Connections</b>	<b>Missouri Learning Standards for Science</b>
		<b>Kindergarten</b>
<b>Raise the Roof: Designing Shelters</b>	<ul style="list-style-type: none"> <li>• light and shadow</li> <li>• the warming effect of the Sun</li> <li>• animals and animal needs</li> </ul>	<p>PS3 - Energy: K.PS3.A.1, K.PS3.B.1</p> <p>ESS2 - Earth's Systems: K.ESS2.E.1</p> <p>ETS1 - Engineering Design: K.ETS1.A.1, K.ETS1.B.1, K.ETS1.C.1</p>
<b>Here's the Scoop: Designing Trash Collectors</b>	<ul style="list-style-type: none"> <li>• the basic needs of living things</li> <li>• animal habitats and ecosystems</li> <li>• human impact on the environment</li> <li>• recycling and environmental stewardship</li> </ul>	<p>ESS3 - Earth and Human Activity: K.ESS3.C.1</p> <p>ETS1 - Engineering Design: K.ETS1.A.1, K.ETS1.B.1, K.ETS1.C.1</p>



### Units with Life Science Topics

Unit	Engineering and Science Fields	Missouri Learning Standards for Science					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>Just Passing Through: Designing Model Membranes</b>	Bioengineering Needs of Organisms	K.LS1.C.1 K.ETS1.A.1 K.ETS1.B.1 K.ETS1.C.1	1.LS1.A.1 1.ETS1.A.1 1.ETS1.B.1 1.ETS1.C.1		3.LS3.C.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1		
<b>The Best of Bugs: Designing Hand Pollinators</b>	Agricultural Engineering Insects and Plants		1.LS1.A.1 1.ETS1.A.1 1.ETS1.B.1 1.ETS1.C.1	2.LS2.A.2 2.PS1.A.1 2.PS1.A.2 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1	3.LS3.C.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1		
<b>No Bones About It: Designing Knee Braces</b>	Biomedical Engineering Skeletal and Muscular Systems					4.LS1.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>Thinking Inside the Box: Designing Plant Packages</b>	Package Engineering Plants	K.LS1.C.1 K.ETS1.A.1 K.ETS1.B.1 K.ETS1.C.1		2.LS2.A.1 2.PS1.A.1 2.PS1.A.2 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1		4.LS1.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>A Slick Solution: Cleaning an Oil Spill</b> <i>Also listed with Earth Science</i>	Environmental Engineering Ecosystems				3.LS3.C.1 3.LS3.D.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1		5.LS1.C.1 5.LS2.B 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1

### Units with Earth Science Topics

Unit	Engineering and Science Fields	Missouri Learning Standards for Science					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>Catching the Wind: Designing Windmills</b>  <i>Also listed with Physical Science</i>	Mechanical Engineering  Weather	K.ESS2.D.1 K.ETS1.A.1 K.ETS1.B.1 K.ETS1.C.1			3.ESS2.D.2 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1	4.PS2.A.2 4.PS2.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>Now You're Cooking: Designing Solar Ovens</b>  <i>Also listed with Physical Science</i>	Green Engineering  Energy and Energy Resources					4.PS3.B.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.ESS3.C.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Solid as a Rock: Replicating an Artifact</b>	Materials Engineering  Rocks and Minerals			2.PS1.A.1 2.PS1.A.2 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1		4.ESS1.4 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>A Slick Solution: Cleaning an Oil Spill</b>  <i>Also listed with Life Science</i>	Environmental Engineering  Ecosystems	K.ESS2.D.1 K.ESS3.A.1 K.ESS3.C.1 K.ETS1.A.1 K.ETS1.B.1 K.ETS1.C.1					5.ESS2.A.1 5.ESS2.C.1 5.ESS3.C.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>A Stick in the Mud: Evaluating a Landscape</b>	Geotechnical Engineering  Landforms and Maps			2.ESS1.C.1 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1	3.ESS3.B.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1	4.ESS2.B.1 4.ESS3.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	

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**Units with Earth Science Topics, *continued***

Unit	Engineering and Science Fields	Missouri Learning Standards for Science					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>Taking the Plunge: Designing Submersibles</b> <i>Also listed with Physical Science</i>	Ocean Engineering  Sinking and Floating					4.ESS2.B.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.ESS2.A.1 5.ESS2.C.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Water, Water Everywhere: Designing Water Filters</b>	Environmental Engineering  Water				3.LS3.D.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1		5.ESS2.A.1 5.ESS3.C.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1

### Units with Physical Science Topics

Unit	Engineering and Science Fields	Missouri Learning Standards for Science					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>To Get to the Other Side: Designing Bridges</b>	Civil Engineering Forces	K.PS2.A.1 K.ETS1.A.1 K.ETS1.B.1 K.ETS1.C.1				4.PS2.A.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.PS2.B.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Sounds Like Fun: Seeing Animal Sounds</b>	Acoustical Engineering Sound		1.PS4.A.1 1.PS4.C.1 1.ETS1.A.1 1.ETS1.B.1 1.ETS1.C.1			4.PS3.B.1 4.PS4.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>A Sticky Situation: Designing Walls</b>	Materials Engineering Earth Materials			2.PS1.A.1 2.PS1.A.2 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1			5.PS1.B.2 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Now You're Cooking: Designing Solar Ovens</b> <i>Also listed with Earth Science</i>	Green Engineering Energy					4.PS3.B.1 4.PS3.B.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>The Attraction Is Obvious: Designing Maglev Systems</b>	Transportation Engineering Magnets				3.PS2.B.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1		
<b>A Work in Process: Improving a Play Dough Process</b>	Chemical Engineering Process Engineering Solids and Liquids			2.PS1.A.1 2.PS1.A.2 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1			5.PS1.B.2 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>An Alarming Idea: Designing Alarm Circuits</b>	Electrical Engineering Electricity					4.PS3.B.1 4.PS3.B.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	

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### Units with Physical Science Topics, *continued*

Unit	Engineering and Science Fields	Missouri Learning Standards for Science					
		Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>Lighten Up: Designing Lighting Systems</b>	Optical Engineering Light						5.PS4.A.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Taking the Plunge: Designing Submersibles</b>  <i>Also listed with Earth Science</i>	Ocean Engineering  Sinking and Floating			2.PS1.A.1 2.PS1.A.2 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1			5.ESS2.A.1 5.ESS2.C.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Marvelous Machines: Making Work Easier</b>	Industrial Engineering  Simple Machines					4.PS2.A.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.PS2.B.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Catching the Wind: Designing Windmills</b>  <i>Also listed with Earth Science</i>	Mechanical Engineering  Weather				3.ESS2.D.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1	4.PS3.A.1 4.PS3.B.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>A Long Way Down: Designing Parachutes</b>	Aerospace Engineering  Solar System					4.PS2.A.1 4.PS2.A.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.PS2.B.1 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1

# Engineering Essentials Alignment to Alignment to Missouri Learning Standards for Science, 2016

Grade	Unit	Engineering Field	Missouri Learning Standards
1st	Designing Lighting Systems	Optical Engineering	1.ETS1.A.1 1.ETS1.B.1 1.ETS1.C.1
2nd	Designing Hand Pollinators	Agricultural Engineering	2.LS2.A.2 2.PS1.A.1 2.PS1.A.2 2.ETS1.A.1 2.ETS1.B.1 2.ETS1.C.1
3rd	Designing Maglev Systems	Transportation Engineering	3.PS2.B.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1
4th	Designing Solar Ovens	Green Engineering	4.PS3.B.1 4.PS3.B.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1
5th	Cleaning an Oil Spill	Environmental Engineering	5.ESS2.A.1 5.ESS2.C.1 5.ESS3.C.1 5.LS1.C.1 5.LS2.B 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1

Unit	Engineering Fields and Science Connections	Missouri Learning Standards		
		Grade 3	Grade 4	Grade 5
<b>Bubble Bonanza: Engineering Bubble Wands</b>	Materials Engineering  Matter and Its Interactions			5.PS1.B.2 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Go Green: Engineering Recycled Racers</b>	Green Engineering  Energy, Forces		4.PS3.A.1 4.PS2.A.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>In Good Hands: Engineering Space Gloves</b>	Materials Engineering  Properties of Materials, Energy Transfer	3.ESS3.B.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1	4.PS3.B.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>Liftoff: Engineering Rockets and Rovers</b>	Aerospace Engineering  Forces and Interactions		4.PS2.A.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.PS1.A.2 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1
<b>Light Up the Night: An Electrical Engineering Challenge</b>	Electrical Engineering  Electric Circuits, Light		4.PS3.B.1 4.PS3.B.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>Music to My Ears: An Acoustical Engineering Challenge</b>	Acoustical Engineering  Sound		4.PS3.B.1 4.PS4.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>The Sky's the Limit: Engineering Flying Technologies</b>	Aeronautical Engineering  Forces and Interactions	3.ESS2.D.2 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1	4.PS2.A.1 4.PS2.A.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.PS1.A.2 5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1



Unit	Engineering Fields and Science Connections	Missouri Learning Standards		
		Grade 3	Grade 4	Grade 5
<b>Shake Things Up: Engineering Earthquake-Resistant Buildings</b>	Earthquake Engineering  Earthquakes		4.PS2.A.2 4.ESS3.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>A Slippery Slope: Engineering an Avalanche Protection System</b>	Avalanche Engineering  Forces and Interactions		4.PS3.B.1 4.PS4.A.1 4.PS2.A.2 4.ESS3.A.1 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>Hop to It: Safe Removal of Invasive Species</b>	Mechanical Engineering  Environmental Science	3.LS3.B.1 3.LS3.C.1 3.LS3.D.1 3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1	4.PS2.A.2 4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	
<b>To the Rescue: Engineering Aid Drop Packages</b>	Package Engineering  Energy, Forces	3.ETS1.A.1 3.ETS1.B.1 3.ETS1.C.1	4.ETS1.A.1 4.ETS1.B.1 4.ETS1.C.1	5.ETS1.A.1 5.ETS1.B.1 5.ETS1.C.1

Unit	Engineering Field	Science Topics	Missouri Learning Standards	
			Science	Engineering
<b>Don't Runoff: Engineering an Urban Landscape</b>	Environmental Engineering	Natural Resources Earth and Human Activity	6-8.LS2.A.1 6-8.LS2.C.1 6-8.LS2.C.2 6-8.ESS3.C.2 6-8.ESS3.C.1	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>Food for Thought: Engineering Ice Cream</b>	Process Engineering	Matter Energy Transfer	6-8.PS1.A.2 6-8.PS1.B.2 6-8.PS4.A.2	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>Go Fish: Engineering Prosthetic Tails</b>	Biomechanical Engineering	Structures and Function in Animals	6-8.LS1.B.1	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>Growing Up: Engineering Vertical Farms</b>	Agricultural Engineering	Light Photosynthesis Natural Resources	6-8.PS4.A.2 6-8.LS1.B.1 6-8.LS1.C 6-8.LS2.C.2	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>It's in the Bag: Engineering Bioinspired Gear</b>	Materials Engineering Bioinspired Engineering	Structures and Function in Animals	6-8.LS1.B.1	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>Outbreak Alert!: Engineering a Pandemic Response</b>	Biomedical Engineering	Cells, Viruses Public Health	6-8.LS1.A.1 6-8.LS4.B.1	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>Testing the Waters: Engineering a Water Reuse Process</b>	Process Engineering Water Resource Engineering	Natural Resources	6-8.LS2.C.2 6-8.ESS3.C.1 6-8.ESS3.C.2	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>Worlds Apart: Engineering Remote Sensing Devices</b>	Remote Sensing Engineering	Light Solar System	6-8.PS4.A.2 6-8.ESS1.B 6-8.ESS2.B	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3
<b>Plants to Plastics: Engineering Bioplastics</b>	Chemical Engineering	Properties of Matter Chemical Reactions	6-8.PS1.A.2 6-8.PS1.A.3 6-8.ESS3.C.2	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8.ETS1.B.3

Unit	Engineering Field	Science Topics	Missouri Learning Standards	
			Science	Engineering
<b>It's About Time: Engineering Timers</b>	Mechanical Engineering	Physical Science		6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8-ETS1.B.3
<b>Put a Lid on It: Engineering Safety Helmets</b>	Biomechanical Engineering	Forces and Motion Nervous System	6-8.PS2.A.1	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8-ETS1.B.3
<b>Here Comes the Sun: Engineering Insulated Homes</b>	Green Engineering	Thermal Energy Transfer Properties of Matter Natural Resources Earth and Human Activity	6-8.PS1.A.4 6-8.PS3.A.3 6-8.PS3.A.4 6-8.PS4.A.2 6-8.ESS3.C.1 6-8.ESS3.C.2	6-8.ETS1.A 6-8.ETS1.B.1 6-8.ETS1.B.2 6-8-ETS1.B.3